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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,507	08/28/2006	Olivier Lavastre	F-884 (31223.00114)	3556
25264	7590	12/31/2007		
FINA TECHNOLOGY INC			EXAMINER	
PO BOX 674412			LU, C CAIXIA	
HOUSTON, TX 77267-4412				
			ART UNIT	PAPER NUMBER
			1796	
			MAIL DATE	DELIVERY MODE
			12/31/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/573,507	LAVASTRE ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Caixia Lu	1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 38-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 38-48 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Objections***

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 36-46 been renumbered 38-48.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 38-48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant has indicated that the new claims 38-48 are based on previous claim 35 in combination the other previous claims. However, the examiner is unable to identify the full support of the new set of claims and has sent out an Action on September 24, 2007 regarding the nonresponsive amendment. For example, claim 38 claims a bimodal polyethylene is prepared from porous polyethylene bead supported catalyst while claim 35 claims the bimodal

polyethylene is prepared from hollow polyethylene bead supported catalyst. In applicant's Remarks filed November 13, 2007, applicant is unable to provide any detailed explanation regarding how the new set of claims is supported. Therefore, the instant claims are deemed to be new matter. Applicant is again requested to map out the detailed support for the new set of claims.

***Claim Rejections - 35 USC § 103***

4. Claims 38-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collina et al. (WO 96/11218) in view Chang (US 6,734,267), Smith et al. (US 4,587,227) and Lin et al. (New J. Chem. 2002, 26, 1485-1489).

Collina generally teach a multistage process for preparation of olefin polymers comprising (A) a first stage of polymerization to provide porous olefin polymer beads, (B) a treatment stage in which the catalyst used in the first stage of polymerization is deactivated and a second catalyst composition is impregnated to the porous polymer beads, and (C) a second stage of polymerization wherein one or more olefins are polymerized in the presence of the porous polymer beads impregnated with second catalyst (col. 4, lines 3-30).

It is noted that Collina does not expressly teach the impregnation of the catalyst to the porous polymer beads under reduced pressure and the preparation of the porous ethylene polymer beads in the presence of a polystyrene supported ion based complex of formula (I) of claim 38 or 48. Impregnating the catalyst solution to a porous support under vacuum or pressure maximizes the impregnation of the catalyst composition to

the porous of the support and thus minimizes fouling during polymerization and such is taught in Chang (col. 1, line 63 to col. 2, line 7).

Furthermore, Lin teaches the preparation of polyethylene porous beads in the presence of a polystyrene supported iron based complex which provide improved morphology (page 1487, left col.).

It is routine practice to wash the supported catalyst to remove unsupported catalyst to minimize fouling during the polymerization and such is demonstrated in Smith (col. 8, lines 1-5).

The cited references are analogous because they all are from the same area of endeavor of olefin polymerizations.

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ Lin's polyethylene porous beads as the support in Collin's supported catalyst composition preparation process and impregnating the support with a catalyst composition under reduced pressure and wash the supported catalyst to remove any unsupported catalyst complex in order to provide a support catalyst composition with improved morphology and desired impregnation and further conducting an ethylene polymerization to provide a bimodal ethylene polymer with reduced fouling since such is conventionally done in the art and in the absence of any showing of criticality and unexpected results.

***Response to Arguments***

5. Applicant's arguments filed November 17, 2007 have been fully considered but they are not persuasive.

Applicant argues that Collina does not disclose a bimodal polyethylene. This is incorrect. As shown in the above rejection, Collina teaches the two-stage polymerization process and in each stage, the polymerization is conducted in the presence of a different catalyst and under different polymerization conditions. When ethylene polymerizations are conducted in both stages, ethylene polymers produced in the two stages will have different molecular weight and microstructure due to different catalysts and polymerization conditions of each stage. That is, Collina's ethylene polymer is inherently bimodal.

Applicant also argues that Lin's styrene used in catalyst preparation is in fact liquid. This is correct because styrene is in liquid state at room temperature. However, Lin's catalyst PC-1 as disclosed in paragraph 2.4.4 of page 1487 is a radical polymerization solid product wherein the polystyrene resulted from radical polymerization having Mw of 22,298 is in solid state as indicated in the paragraph. On the other hand, paragraph 2.4.5 on the same page demonstrate the preparation of shell-core polymer-incorporated iron catalysts SC-1 and SC-2, wherein the core is silica and the shell (solid) is the polystyrene radically polymerized from the liquid styrene and the iron complex as shown in the Schemes of the page.

In view the foregoing, the rejection under 35 U.S.C. 103(a) is deemed proper and thus maintained.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful and the matter is urgent, the examiner's supervisor, David Wu, can be reached at (571) 272-1114. The fax numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.



Caixia Lu, Ph. D.  
Primary Examiner